

WHAT IS CLAIMED IS:

1. A method of securing a polymeric member to a metallic member in a high strength fluid tight relationship comprising:
 - a) mounting the polymeric member against the metallic member; and
 - b) hot pressing the polymeric member against the metallic member at a temperature above the glass transition temperature and below the melting point of the polymeric material of the polymeric member while subjecting the polymeric material to plastic deformation.

2. The method of claim 1 wherein the polymeric member is a tubular element with an inner lumen extending therethrough and at least part of the metallic member is disposed within the inner lumen of the polymeric member and the polymeric material surrounding the metallic member is hot pressed against the portion of the metallic member within the inner lumen.

3. The method of claim 1 wherein the polymeric material from which the polymeric member is formed is a thermoplastic polymer selected from the group consisting of polyetheretherketone, polyetheramide, polyphenylene sulfide and polysulfone.

4. The method of claim 1 wherein the hot pressing of the polymeric member against the metallic member includes placing a heat shrinkable member about the polymeric member and the metallic member, heating the heat

4 shrinkable member to shrink said member against the polymeric and metallic
5 members, causing the temperatures of both the polymeric and metallic members
6 to increase to a temperature above the glass transition temperature of the
7 polymeric material and apply adequate pressure to cause the polymeric member
8 to be plastically deform and bond to the metallic member.

1 5. The method of claim 4 wherein the heat shrinkable member is
2 removed from the junction between the polymeric material and the metallic
3 member.

1 6. The method of claim 4 wherein the heat shrinkable member is a
2 polymeric collar.

1 7. The method of claim 4 wherein the polymeric collar is formed of a
2 fluoropolymer.

1 8. An intravascular catheter with an elongated shaft comprising:
2 a) an elongated metallic tubular member having proximal and
3 distal ends and an inner lumen extending between the proximal and distal
4 ends;
5 b) a polymeric tubular member having proximal and distal ends
6 and an inner lumen extending between the proximal and distal ends; and
7 c) a hot pressed bond between one part of the metallic tubular
8 member and one part of the polymeric tubular member.

1 9. The intravascular catheter of claim 8 wherein the polymeric
2 material is a thermoplastic polymer selected from the group consisting of
3 polyetheretherketone, polyetheramide, polyphenylene sulfide and polysulfone.

1 10. The intravascular catheter of claim 8 wherein the one end of the
2 polymeric tubular member is disposed about and hot press bonded to the
3 exterior of one end of the metallic tubular member.

1 11. A balloon dilatation catheter comprising:

- 2 a) an elongated proximal shaft section formed at least in part of
3 a metallic tubular member having proximal and distal ends and an inner
4 lumen extending between the proximal and distal ends;
- 5 b) an elongated distal shaft section formed at least in part of a
6 polymeric tubular member having proximal and distal ends and an inner
7 lumen extending between the proximal and distal ends;
- 8 c) a hot pressed bond between part of the metallic tubular
9 member and part of the polymeric tubular member; and
- 10 d) an inflatable dilatation balloon on the distal shaft section
11 having an interior in fluid communication with the inner lumen of the
12 polymeric tubular member.

1 12. An intravascular catheter with an elongated shaft comprising:

- a) an elongated metallic tubular member having proximal and distal ends and an inner lumen extending between the proximal and distal ends;
- b) a polymeric adapter having proximal and distal ends and an inner lumen extending between the proximal and distal ends; and
- c) a hot pressed bond between the proximal end of the metallic tubular member and the distal end of the polymeric adapter.

13. The intravascular catheter of claim 12 wherein the distal end of the polymeric adapter is bonded to the exterior of the proximal end of the metallic tubular member.

14. The intravascular catheter of claim 13 wherein the inner lumen of the metallic tubular member is in fluid communication with the inner lumen of the adapter.

15. A rapid exchange type balloon dilatation catheter comprising:

- a) an elongated proximal shaft section formed at least in part of a metallic tubular member having proximal and distal ends and a first inner lumen extending therein;
- b) an elongated distal shaft section, which is formed at least in part of a polymeric tubular member, having proximal and distal ends, a first port in the distal end and a second port spaced proximal to the distal end, a dilatation balloon with an interior, a second inner lumen extending

9 therein which is in fluid communication with the first inner lumen in the
10 metallic tubular member and the interior of the dilatation balloon and a
11 third inner lumen which is in fluid communication with the first and second
12 ports; and

13 c) a hot pressed bond between part of the metallic tubular
14 member and part of the polymeric tubular member.

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